



# 2017 AGU Fall Meeting

## Schedule of Events at the NASA Booth #1645

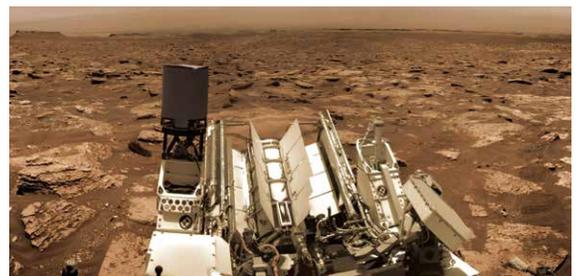
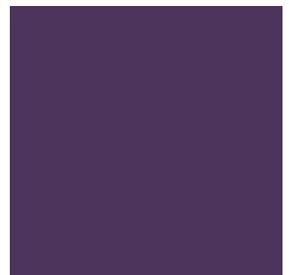
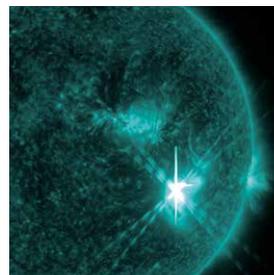
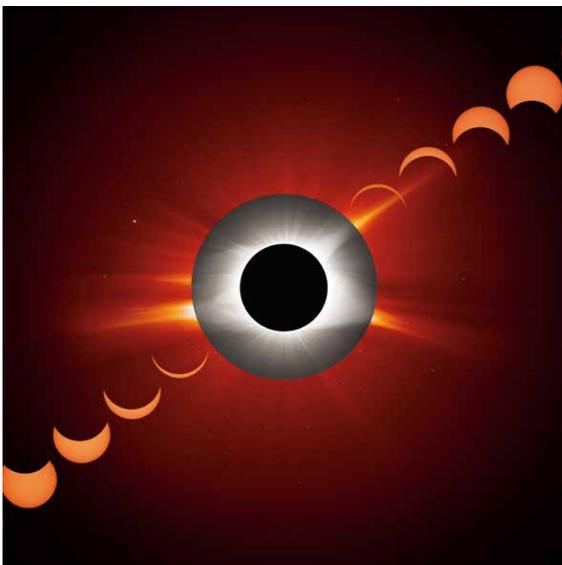


Navigate the streets (or *rues*) of the NASA Booth (#1645) and immerse yourself in science. Join us at the Inspiration Theatre for science stories, share a piece of your personal history involving NASA at NASA's Living Timeline exhibit, and make new science connections while strolling down Avenues Interconnected, Impact, Innovation, and Inspiration. Learn something new, have fun, and discover together!



[nasa.gov](http://nasa.gov)

[svs.gsfc.nasa.gov/hw](http://svs.gsfc.nasa.gov/hw)



## Table of Contents

<b>Monday</b>	
Hyperwall Presentations • Live Demonstrations .....	2
<b>Tuesday</b>	
Hyperwall Presentations • Flash Talks • Live Demonstrations.....	3
<b>Wednesday</b>	
Hyperwall Presentations • Flash Talks • Live Demonstrations.....	4
<b>Thursday</b>	
Hyperwall Presentations • Flash Talks • Live Demonstrations.....	5
<b>Friday</b>	
Hyperwall Presentations • Live Demonstrations.....	6
<b>Detailed Descriptions of Flash Talks</b> .....	7 - 12
<b>Detailed Descriptions of Live Demonstrations</b> .....	13

<b>L E G E N D</b>	<b>HYPERWALL PRESENTATIONS</b>	(15 minute talks at Rue Inspiration Theatre)
	<b>FLASH TALKS</b>	(7 minute talks at Rue Inspiration Theatre)
	<b>LIVE DEMONSTRATIONS</b>	(located at Rue Live Demo)
	<b>2017 WINNERS OF THE AGU DATA VISUALIZATION AND STORYTELLING COMPETITION</b>	(located at Rue Inspiration Theatre)

## MONDAY, DECEMBER 11, 2017

TIME	HYPERWALL PRESENTATIONS	PRESENTER
6:10 - 6:25 PM	NASA's Earth Observation Capabilities: Meeting the Challenges of Climate and Environmental Change	Michael Freilich
6:25 - 6:40 PM	Recent Discoveries in the Solar System	James Green
6:40 - 6:55 PM	The Science of Space	Alex Young
6:55 - 7:10 PM	Discovering Innovative and Practical Uses of Earth Observations	Lawrence Friedl
7:10 - 7:25 PM	NASA's Europa Clipper Mission: Exploring a Potentially Habitable World	Steve Vance
7:25 - 7:40 PM	Supercomputing the Earth	Daniel Duffy
7:40 - 7:55 PM	NASA-NSF Joint Story: Digital Elevation of the Arctic	Paul Morin, Michael Freilich
<b>LIVE DEMONSTRATIONS</b>		
6:00 - 8:00 PM	Virtual Reality for Earth Science Applications	Joe Roberts, Christian Alarcon

TIME	HYPERWALL PRESENTATIONS	PRESENTER
9:35 - 9:45 AM	NASA's TSIS-1: Tracking Solar Energy Input to Planet Earth	Dong Wu
9:45 - 10:00 AM	Fluid Lensing and Deep Machine Learning for Global Coral Reef Assessment	Ved Chirayath
10:00 - 10:15 AM	Do We Really Know Why the Arctic Is Warming So Fast?	Patrick Taylor
10:15 - 10:30 AM	Earth Observations for Global Water Knowledge	John Bolten
10:30 - 10:45 AM	Mapping Methane Plumes with the AVIRIS-NG Instrument: Four Corners	Andrew Thorpe
10:45 - 11:00 AM	Bringing Jupiter into Focus with JunoCam	Fachreddin Tabataba-Vakili
11:00 - 11:15 AM	Space Weather Throughout the Solar System and Beyond	Elsayed Talaat
11:15 - 11:30 AM	Parker Solar Probe	Nicky Fox
11:30 - 11:45 AM	Sedimentary and Diagenetic Environments in Gale Crater, Mars	Elizabeth Rampe
11:45 - 12:00 PM	NASA's Earth Observation Capabilities: Meeting the Challenges of Climate and Environmental Change	Michael Freilich
<b>2017 WINNERS OF THE AGU DATA VISUALIZATION AND STORYTELLING COMPETITION</b>		
12:10 - 12:25 PM	Bringing Big Data to Remote Places	Rebecca Lehman (Yale)
12:25 - 12:40 PM	Climate Feedbacks from Coastal Marshes	Yu Mo (UMD)
12:40 - 12:55 PM	Intraseasonal Variability in Earth's Atmosphere and Ocean: The MISO and MJO	Jason West (CU)
<b>FLASH TALKS</b>		
1:00 - 1:07 PM	Exploring Proposed Human Landing Sites on Mars	Brian Day
1:10 - 1:17 PM	Visualizing Precipitation with GPM	Jacob Reed
1:20 - 1:27 PM	Remote Sensing Data Fusion Identifies New Ways to Detect Severe Storms	William Smith Jr.
1:30 - 1:37 PM	Where Terrestrial Weather Meets Space Weather	Doug Rowland
1:40 - 1:47 PM	Enhancing Marine Wildlife Management	Farnaz Bayat
1:50 - 1:57 PM	Curiosity and the Four Seasons	Melissa Trainer
2:00 - 2:07 PM	Exploring Gale Crater's Record of Martian Environmental History	Amy McAdam
2:10 - 2:17 PM	Detecting Organic Molecules on Mars	James Lewis
2:20 - 2:27 PM	Beyond the SARchasm: Using Interferometry to Introduce Users to the NISAR Mission	Jessica Garron
2:30 - 2:37 PM	Exploring Extreme Weather Events and Aerosol Forecasts with CREATE-V	Laura Carriere
2:40 - 2:47 PM	Experience the World's Largest Hackathon: The NASA International Space Apps Challenge!	Sarah Hemmings
2:50 - 2:57 PM	25 Years of Laser Altimetry: A Photon-Based Tour of the Cryosphere	Steve Tanner
<b>HYPERWALL PRESENTATIONS</b>		
3:00 - 3:15 PM	NASA Responses to Disasters	David Green
3:15 - 3:30 PM	Sustained Water Changes During Drought	Donald Argus
3:30 - 3:45 PM	NASA is Hot on Wildland Fire	Amber Soja
3:45 - 4:00 PM	The 2017 Pine Island Glacier and Larsen C Ice Shelf Calving Events	Chris Shuman
4:00 - 4:15 PM	The Hole Ozone Story	Richard Eckman
4:15 - 4:30 PM	NASA Global Climate Observations: Discover How Satellites See Climate Change	Jack Kaye
4:30 - 4:45 PM	Highlights from USGCRP's Climate Science Special Report	Don Wuebbles
4:45 - 5:00 PM	NEX-AI: Data-Driven Insights in the Earth Sciences	Sangram Ganguly
<b>LIVE DEMONSTRATIONS</b>		
9:30 - 12:00 PM	Virtual Reality for Earth Science Applications	Joe Roberts, Christian Alarcon
12:00 - 1:00 PM	Motion in the Ocean	Valerie Casasanto
1:00 - 2:00 PM	Explore Mapping Tools From the NASA Socioeconomic Data and Applications Center (SEDAC)	Robert Downs
2:00 - 3:00 PM	Everything You Wanted to Know About NASA's Eyes But Were Afraid to Ask	Kevin Hussey
3:00 - 3:30 PM	NASA Ocean Tools and Services for Science Users	Ed Armstrong
3:30 - 4:00 PM	MoonDB: Petrological Database of Lunar Samples	Kerstin Lehnert
4:00 - 5:00 PM	Earthdata Search: A Highly Interactive Tool for Searching and Accessing NASA's Earth Observation Data	Chris Lynnes



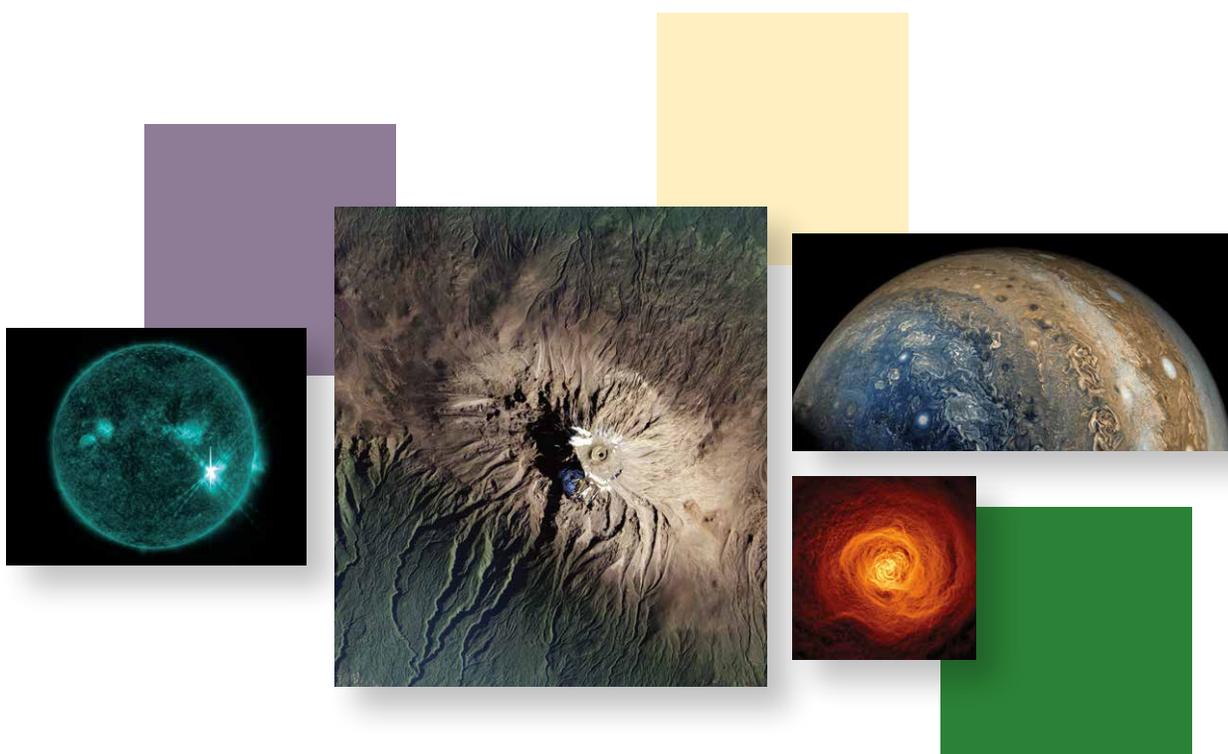
TIME	HYPERWALL PRESENTATIONS	PRESENTER
9:45 - 10:00 AM	New Interpretations of the Apollo 17 Landing Site Enabled by NASA's Lunar Reconnaissance Orbiter	Jack Schmitt, Noah Petro
10:00 - 10:15 AM	Small Worlds, Big Discoveries	James Green
10:15 - 10:30 AM	Future Ways to Explore	Randii Wessen
10:30 - 10:45 AM	Planetary Defense: What's Lurking Out There?	Michelle Thaller
10:45 - 11:00 AM	What's New with Earth's Ozone Layer?	Paul Newman
11:00 - 11:15 AM	ICESat-2: NASA's Next Generation Laser Altimeter	Thorsten Markus
11:15 - 11:30 AM	Cloud Effects on the Earth's Radiation Budget	Lazaros Oreopoulos
11:30 - 11:45 AM	NASA's Satellite Observations for Air Quality Applications	Ali Omar
11:45 - 12:00 PM	First Light on NASA's Newest Clouds and the Earth's Radiant Energy System	Norman Loeb
<b>2017 WINNERS OF THE AGU DATA VISUALIZATION AND STORYTELLING COMPETITION</b>		
12:10 - 12:25 PM	An Online Tool for Probabilistic Drought Monitoring and Forecasting Across the Contiguous United States Based on Satellite Data Assimilation	Mahkameh Zarekarizi (PSU)
12:25 - 12:40 PM	Visualizing the Io Plasma Torus	Parker Hinton (CU)
12:40 - 12:55 PM	SEA 3-D: Visualizing Waves Using LiDAR	Andrea Albright (UH)
<b>FLASH TALKS</b>		
1:00 - 1:07 PM	Motion in the Ocean	Valerie Casasanto
1:10 - 1:17 PM	How Does Weather Stir the Pot of Atmospheric Greenhouse Gasses (and Why Do We Care)?	Ken Davis
1:20 - 1:27 PM	Earth Observations in Support of the United Nations Sustainable Development Goals	Brock Bleivins
1:30 - 1:37 PM	Coronal Holes: Key Clues to Better Understanding Our Sun	Michael Kirk
1:40 - 1:47 PM	100 Lunar Days at the Moon with NASA's Lunar Reconnaissance Orbiter	Noah Petro
1:50 - 1:57 PM	Making Sense of NASA Air Quality Data, Powered by Citizen Scientists	Pawan Gupta
2:00 - 2:07 PM	Where We Live and Work: New Human Population and Settlement Data from SEDAC	Gregory Yetman
2:10 - 2:17 PM	From Bits to Qubits: Discover the Next Holy Grail of Quantum Computing	Milton Halem
2:20 - 2:27 PM	Lowering Barriers to Visualizing Earth Observation Data with Tethys	Sarva Pulla
2:30 - 2:37 PM	Photonic HSI Imaging: Guiding Light as The World Turns	Stephanie Sandor-Leahy
2:40 - 2:47 PM	Striking Near Real-Time Lightning Data from the ISS	Leigh Sinclair
2:50 - 2:57 PM	Bringing Harmony to Heterogeneous Soil Moisture Data	Rupesh Shrestha
<b>HYPERWALL PRESENTATIONS</b>		
3:00 - 3:15 PM	Detecting Population and Energy Usage Dynamics from Space: Air Quality and Nightlights	Steve Platnick
3:15 - 3:30 PM	Exploring Mars with Mars Trek 3.0	Brian Day
3:30 - 3:45 PM	Sunny with a Chance of Space Storms	Alex Young
3:45 - 4:00 PM	Measuring Mangroves from Space: No More Swamp Feet	David Lagomasino
4:00 - 4:15 PM	Observing Ocean Life from Space and at Sea—and You Can Do It Too!	Stephanie Uz
4:15 - 4:30 PM	Terra: An 18-Year Team Effort	Kurtis Thome
4:30 - 4:45 PM	Mars inSight	Sue Smrekar
4:45 - 5:00 PM	The Arctic-Boreal Vulnerability Experiment Airborne Campaign	Peter Griffith, Chip Miller, Liz Hoy
<b>LIVE DEMONSTRATIONS</b>		
9:30 - 11:00 AM	Explore Mapping Tools From the NASA Socioeconomic Data and Applications Center (SEDAC)	Robert Downs
11:00 - 11:30 AM	MoonDB: Petrological Database of Lunar Samples	Kerstin Lehnert
11:30 - 12:00 PM	NASA Ocean Tools and Services for Science Users	Ed Armstrong
12:00 - 1:00 PM	Everything You Wanted to Know About NASA's Eyes But Were Afraid to Ask	Kevin Hussey
1:00 - 3:00 PM	View Your World With Worldview!	Jeff Schmaltz
3:00 - 4:00 PM	Earthdata Search: A Highly Interactive Tool for Searching and Accessing NASA's Earth Observation Data	Chris Lynnes
4:00 - 5:00 PM	Motion in the Ocean	Valerie Casasanto

TIME	HYPERWALL PRESENTATIONS	PRESENTER
9:45 - 10:00 AM	Visualize the Speed of Light and More Using NASA's Eyes	Kevin Hussey
10:00 - 10:15 AM	Preparing for Humans to Conduct Field Geology on Other Worlds	Noah Petro
10:15 - 10:30 AM	Rayleigh-Plateau Instability of a Water Column Aboard 'The Vomit Comet!'	Prabhakar Misra
10:30 - 10:45 AM	NASA's Global Rain and Snow Observations for Science and Society	Gail Skofronick-Jackson
10:45 - 11:00 AM	The Ozone Layer: What Is and What Might Have Been	Luke Oman
11:00 - 11:15 AM	No Smoke Without Fire	Charles Ichoku
11:15 - 11:30 AM	Earth from Space: Geologic	Michael Abrams
11:30 - 11:45 AM	Supercomputing the Earth	Daniel Duffy
11:45 - 12:00 PM	OCO-2 Observed the Response of the Carbon Cycle to the 2015-16 El Niño	David Crisp
12:00 - 12:15 PM	One Earth: One Health — NASA Observations Applied to a Changing World	John Haynes
12:15 - 12:30 PM	NASA's Worldview	Kevin Murphy
12:30 - 12:45 PM	Science and the Deep Space Gateway	James Spann
12:45 - 1:00 PM	High Mountain Asia	Anthony Arendt
<b>FLASH TALKS</b>		
1:00 - 1:07 PM	How Cool was the Eclipse?	Kristen Weaver
1:10 - 1:17 PM	Preparing for New Astronaut Footprints: NASA's TREX team	Amanda Hendrix
1:20 - 1:27 PM	Radar Love: New Data, New Services, and the Rising Allure of SAR	Franz Meyer
1:30 - 1:37 PM	Beyond the Solar Eclipse: Lunar Eclipse Science with NASA's Lunar Reconnaissance Orbiter	Benjamin Greenhagen
1:40 - 1:47 PM	Pathways to Ocean Data Discovery, Visualization, and Access	Ed Armstrong
1:50 - 1:57 PM	Find the Water!	Rebekke Muench
2:00 - 2:07 PM	Signals of Opportunity (SoOp): Opening the Electromagnetic Spectrum for Earth Observation	James Garrison
2:10 - 2:17 PM	Warning! Local Tsunami Alert from GPS Array	Dara Goldberg
2:20 - 2:27 PM	The Sounds of Space	Alexa Halford
2:30 - 2:37 PM	Say No to the Glow	Christie Stevens
2:40 - 2:47 PM	Some Like It Hot!	Tibor Kremic
2:50 - 2:57 PM	Taking Charge of Economic Growth with the Help of Satellite Imagery	Rushi Begum Rabeya
<b>HYPERWALL PRESENTATIONS</b>		
3:00 - 3:15 PM	Ushering in a New Frontier in Heliophysics with Data Science	Ryan McGranaghan
3:15 - 3:30 PM	Using Meteorites Found on Mars as Planetary Research Tools	James Ashley
3:30 - 3:45 PM	Europa Global Geologic Map	Erin Leonard
3:45 - 4:00 PM	Breakthrough Science Enabled by Intersatellite Omnidirectional Optical Communications	Jose Velazco
4:00 - 4:15 PM	Supercomputing the Earth	Daniel Duffy
4:15 - 4:30 PM	Looking for Life Beyond Earth in the Solar System	James Green
4:30 - 4:45 PM	Living Planet	Compton Tucker
4:45 - 5:00 PM	A Tale of Three Continents: Record Carbon Dioxide Growth During the 2015 El Niño	Kevin Bowman
<b>LIVE DEMONSTRATIONS</b>		
9:30 - 10:30 AM	Trending Five Years of Data From Mars: Online Software Tools for Planetary Instrument Tracking	Eric Lyness
10:30 - 11:30 AM	View Your World With Worldview!	Jeff Schmaltz
11:30 - 1:00 PM	Earthdata Search: A Highly Interactive Tool for Searching and Accessing NASA's Earth Observation Data	Chris Lynnes
1:00 - 5:00 PM	Virtual Reality for Earth Science Applications	Joe Roberts, Christian Alarcon



TIME	HYPERWALL PRESENTATIONS	PRESENTER
9:45 - 10:00 AM	Psyche: Journey to Metal World	Lindy Elkins-Tanton
10:00 - 10:15 AM	Earth at Night	Steve Graham
10:15 - 10:30 AM	Exploring the Moon with Moon Trek	Brian Day
<b>SPECIAL FILM (SHOWN ON HYPERWALL)</b>		
10:30 - 12:00 PM	<i>Before the Flood</i>	

LIVE DEMONSTRATIONS		
9:30 - 10:30 AM	Everything You Wanted to Know About NASA's Eyes But Were Afraid to Ask	Kevin Hussey
10:30 - 11:30 AM	Motion in the Ocean	Valerie Casasanto
11:30 - 1:30 PM	Everything You Wanted to Know About NASA's Eyes But Were Afraid to Ask	Kevin Hussey



# Detailed Descriptions of Flash Talks

Time/Title	Description	Presenter
<b>Tuesday, December 12</b>		
<b>1:00 - 1:07 PM</b> <b>Exploring Proposed Human Landing Sites on Mars</b>	Learn how to conduct your own online explorations of the current candidate human landing sites on Mars. We will use the newly released Version 3 of Mars Trek to examine some of these sites close up and see what makes them so exciting. Join us as we fly into Mars' deepest canyon, skim over martian glaciers, and follow the paths of ancient rivers!	<b>Brian Day</b> Lunar and Planetary Mapping and Modeling Lead, NASA SSERVI
<b>1:10 - 1:17 PM</b> <b>Visualizing Precipitation with GPM</b>	The Global Precipitation Measurement (GPM) mission uses a constellation of satellites to measure Earth's rain and snow from space. This demo will show you how to visualize 2D and 3D GPM precipitation data in your web browser using several new user friendly tools - the IMERG Global Viewer, the GPM Precipitation & Applications Viewer, and STORM Virtual Globe.	<b>Jacob Reed</b> Senior Web Developer for NASA's Global Precipitation Measurement Mission
<b>1:20 - 1:27 PM</b> <b>Remote Sensing Data Fusion Identifies New Ways to Detect Severe Storms</b>	Why do some storms produce severe weather and others don't? This talk will highlight new research on the characteristics of tornado, hail, and damaging wind producing storms using state of the art remote sensing datasets. Geostationary satellite imagery, weather radar data, and lightning detections show that severe storms have stronger updrafts than non-severe storms. Detection of these intense and often rotating updrafts can be used to improve severe weather predictions.	<b>William Smith Jr.</b> Senior Scientist, NASA Langley Research Center (LaRC)
<b>1:30 - 1:37 PM</b> <b>Where Terrestrial Weather Meets Space Weather</b>	Recent discoveries show that unexplained variations in Earth's space environment are connected to conditions in the atmosphere. NASA's Ionospheric Connection Explorer, or ICON, is the first mission to focus on this interplay between terrestrial weather and space weather. ICON explores a little understood area close to home, but historically hard to observe: a region of the upper atmosphere called the ionosphere. One of the most eye-catching phenomena there are colorful bands, called airglow. By tracking changes in airglow, ICON can track changes in the ionosphere.	<b>Doug Rowland</b> Heliophysics Scientist, NASA Goddard Space Flight Center
<b>1:40 - 1:47 PM</b> <b>Enhancing Marine Wildlife Management</b>	The Mobile Bay and Mississippi Sound marine ecosystems provide vital habitat for a diverse array of wildlife species that contribute greatly to the region's economy. Urban development, oil spills, and hurricanes have resulted in loss of marine and coastal habitat facilitating the need for enhanced monitoring capabilities. NASA DEVELOP partnered with the Alabama Coastal Foundation and The Nature Conservancy to provide new methods for creating historical and current water quality assessments.	<b>Farnaz Bayat</b> Alabama – Mobile Center Lead, NASA DEVELOP National Program
<b>1:50 - 1:57 PM</b> <b>Curiosity and the Four Seasons</b>	Curiosity has been on the surface of Mars for over 5 years, and during this time she has been witness to the compositional changes to the Mars atmosphere induced by the seasonal polar cap formation. The Mars Science Laboratory mission and the Sample Analysis at Mars (SAM) instrument suite provide the first comprehensive, multi-year look at the predictable (and unpredictable) behavior of the major species on Mars through its annual seasonal cycle.	<b>Melissa Trainer</b> Research Space Scientist, NASA Goddard Space Flight Center

## Detailed Descriptions of Flash Talks

Time/Title	Description	Presenter
<b>2:00-2:07 PM</b>  <b>Exploring Gale Crater's Record of Martian Environmental History</b>	Over the last five years, the Curiosity rover has characterized the chemical and mineralogical diversity of a variety of martian rocks and soils. Analyses by the Sample Analysis at Mars instrument suite, together with the rich dataset provided by Curiosity's other instruments, have enabled an unprecedented view of the volatiles in martian surface materials.	<b>Amy McAdam</b> Research Space Scientist, NASA Goddard Space Flight Center
<b>2:10 - 2:17 PM</b>  <b>Detecting Organic Molecules on Mars</b>	The Sample Analysis at Mars (SAM) instrument on board Curiosity rover has been analyzing the organic chemistry of Mars for over five years. SAM's achievements include making the first conclusive detection of organic matter on the Martian surface. Join us to discover how this was achieved, what we are doing to further interpret the wealth of data SAM is returning to us, and our plans for the future.	<b>James Lewis</b> Postdoctoral Researcher, NASA Goddard Space Flight Center
<b>2:20 - 2:27 PM</b>  <b>Beyond the SARchasm: Using Interferometry to Introduce Users to the NISAR Mission</b>	GRFN (Getting Ready for NISAR) BETA products are Level 2 interferograms created using cloud-based processing and data-management solutions under development for the NISAR mission. The Alaska Satellite Facility provides these processed Sentinel-1 interferograms in multiple formats in an effort gain user feedback on the many applications of SAR data science anticipated with the NISAR mission. Join us for a demonstration of currently available interferograms and a discussion of SAR science needs for the NISAR mission.	<b>Jessica Garron</b> Sr. Science Consultant, NASA Alaska Satellite Facility (ASF) Distributed Active Archive Center (DAAC)
<b>2:30 - 2:37 PM</b>  <b>Exploring Extreme Weather Events and Aerosol Forecasts with CREATE-V</b>	The NCCS has developed the ability to examine recent weather events in the context of past weather, allowing scientists to quickly make visual analysis of a given event. The data is selected variables from a reanalysis—37 years of observational data merged with a climate model. A recent extension of CREATE-V enables comparing 10 days of NASA aerosol forecast data. The presentation will include short aerosol forecast movies of Hurricanes Harvey, Irma, and Maria. <a href="https://cvs-cv.nccs.nasa.gov/CREATE-V/">https://cvs-cv.nccs.nasa.gov/CREATE-V/</a>	<b>Laura Carriere</b> Data Services Lead, NASA Center for Climate Simulation (NCCS), GSFC
<b>2:40 - 2:47 PM</b>  <b>Experience the World's Largest Hackathon: The NASA International Space Apps Challenge!</b>	Space Apps is an international hackathon that occurs over 48 hours in cities around the world. Coders, scientists, designers, storytellers, makers, builders, technologists, and people enthusiastic about problem-solving come together to address challenges we face on Earth and in space. Space Apps 2017 was the largest yet, with over 25,000 people participating in 187 events across 69 countries. We're excited to continue the tradition of inviting students and professionals, beginners and veterans from all corners of the globe to join in!	<b>Sarah Hemmings</b> Earth Science Policy and Program Analyst (Booz-Allen Hamilton), Earth Science Division, NASA Headquarters
<b>2:50 - 2:57 PM</b>  <b>25 Years of Laser Altimetry: A Photon-Based Tour of the Cryosphere</b>	NASA Operation IceBridge data will be used to dramatically "fly" around a series of glaciers in the Arctic and Antarctic. Initially, this will show only the individual points gathered using a photon counting IceBridge instrument, which will quickly morph into mosaics of thousands of photographs of the actual glaciers. The effect is visually mesmerizing, and makes use of Valkyrie, a new point-cloud and waveform database which allows researchers better access this rich set of data.	<b>Steve Tanner</b> National Snow and Ice Data Center (NSIDC) Project Manager, NASA NSIDC Distributed Active Archive Center (DAAC).

## Detailed Descriptions of Flash Talks (cont.)

Time/Title	Description	Presenter
<b>Wednesday, December 13</b>		
<b>1:00 - 1:07 PM</b> <b>Motion in the Ocean</b>	This hands-on activity explores how water moves throughout the ocean, by using colored saltwater and freshwater in recycled tennis-ball tubes. The experiment demonstrates the global thermohaline circulation system which is one of the major drivers of our global climate. Participants learn about the key role sea ice plays in the circulation system. They will also see for themselves what happens when you pour saltwater on top of freshwater.	<b>Valerie Casasanto</b> Outreach Lead, ICESat-2 Mission, NASA GSFC/UMBC Joint Center for Earth Systems Technology
<b>1:10 - 1:17 PM</b> <b>How Does Weather Stir the Pot of Atmospheric Greenhouse Gasses (and Why Do We Care)?</b>	The eastern United States is a major source of greenhouse gases and a region of vigorous weather. Weather systems pump the greenhouse gases across latitude and altitude. The interplay of fluxes and mixing creates gradients in greenhouse gas concentrations that can be used to diagnose their sources and sinks...if we understand the mixing processes well enough. ACT-America is exploring the details of this atmospheric mixing pot.	<b>Ken Davis</b> Principal Investigator, Atmospheric Carbon and Transport (ACT)-America, Pennsylvania State University
<b>1:20 - 1:27 PM</b> <b>Earth Observations in Support of the United Nations Sustainable Development Goals</b>	The United Nations Sustainable Development Goals (SDGs) is an ambitious agenda designed to reach 17 goals and 169 targets by 2030. These goals will address every global issue from clean drinking water to climate action to food security. Earth Observations can greatly aid in implementing, monitoring, and evaluating the SDGs. This presentation will provide an overview of the SDGs and the satellite data products that can be used to achieve them.	<b>Brock Blevins</b> Training Coordinator, NASA Applied Remote Sensing Training Program (ARSET)
<b>1:30 - 1:37 PM</b> <b>Coronal Holes: Key Clues to Better Understanding Our Sun</b>	Coronal holes are defined by their open magnetic field configuration and lack of emitting plasma. Holes that cap the northern and southern solar poles are the longest-lived features observed on the Sun – persisting for nearly an entire solar cycle. The size and evolution of the polar holes are strongly anti-correlated with the solar activity cycle. Their longevity combined with this solar activity relationship makes polar coronal holes an ideal proxy for measuring the long-term evolution of the solar magnetic field.	<b>Michael Kirk</b> Solar Scientist, ASA GSFC and Catholic University
<b>1:40 - 1:47 PM</b> <b>100 Lunar Days at the Moon with NASA's Lunar Reconnaissance Orbiter</b>	On October 16, we will celebrate the 100th lunar day in orbit of NASA's Lunar Reconnaissance Orbiter (LRO) mission; 100 sunrises and sunsets over the footprints of Apollo astronauts. LRO is the longest operating lunar orbiter, and its impressive mission duration has enabled advances in lunar science only possible through Earth years of data collection.	<b>Noah Petro</b> Deputy Project Scientist of NASA's Lunar Reconnaissance Orbiter Mission, NASA GSFC
<b>1:50 - 1:57 PM</b> <b>Making Sense of NASA Air Quality Data, Powered by Citizen Scientists</b>	Citizen scientists across southern California are collecting high quality air pollution data using low-cost sensors. The motivation is to improve the value of satellite observations from NASA missions through improved scientific understanding, and more importantly, generate widespread usage of NASA data and tools by motivated citizens, effectively creating a new generation of scientists. The talk will present lessons learnt and results, which improved understanding of satellite measurements of air pollution.	<b>Pawan Gupta</b> Research Scientist, GESTAR/USRA

## Detailed Descriptions of Flash Talks

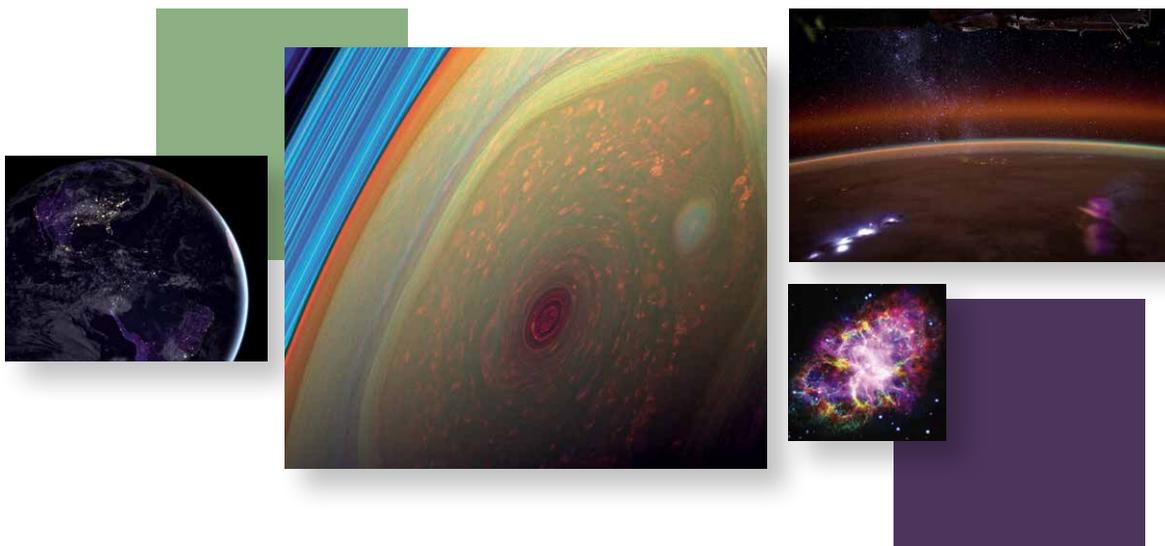
Time/Title	Description	Presenter
<b>2:00 - 2:07 PM</b>  <b>Where We Live and Work: New Human Population and Settlement Data from SEDAC</b>	NASA's Socioeconomic Data and Applications Center (SEDAC) has recently released several new data products characterizing human settlement and population distribution around the world. SEDAC's Gridded Population of the World (GPW) Version 4.10 now includes population estimates by age category and gender for 2010. Other new data include the Global Human Settlements Layer-Population (GHSL-POP), the Global Man-made Impervious Surface & Settlement Extent from Landsat (GMIS/HBASE), and the High Resolution Settlement Layer (HRSL) for many developing countries.	<b>Gregory Yetman</b> Associate Director for Geospatial Applications, CIESIN/Columbia University and NASA SEDAC
<b>2:10 - 2:17 PM</b>  <b>From Bits to Qubits: Discover the Next Holy Grail of Quantum Computing</b>	What if we could build a fault-tolerant universal quantum computer with sufficient qubits for broad practical applications? In this flash talk, we'll introduce you to the next generation of quantum computing—a hybrid quantum annealing system that can train deep artificial neural nets to calculate the inter-annual changes in carbon flux over land from decades of hourly ground station data measurements and several years of satellite observations. Join us to learn how this next 'Holy Grail' of quantum computing can be applied to today's environmental problems for the benefit of society.	<b>Milton Halem</b> Research Professor, Computer Science and Electrical Engineering Department, University of Maryland, Baltimore County
<b>2:20 - 2:27 PM</b>  <b>Lowering Barriers to Visualizing Earth Observation Data with Tethys</b>	Conveying your research through interactive web apps could seem like a daunting task for scientists and engineers. Thanks to the Tethys platform you do not need to be a developer or a software engineer to create your web apps. Our experience has shown that Tethys lowered the barrier for developing web apps, especially for viewing earth observations data. If you can think it, you can make it come to life through the Tethys platform.	<b>Sarva Pulla</b> Geospatial Software Engineer, NASA SERVIR Science Coordination Office
<b>2:30 - 2:37 PM</b>  <b>Photonic HSI Imaging: Guiding Light As The World Turns</b>	Spurred by years of innovation and investment in photonics by the telecommunications industry, integrated photonics now promises to revolutionize remote sensing instruments, offering speed-of-light computing and ultra-compact form factors. In an analogous manner to integrated circuits, lithographically patterned waveguides and planar lightwave circuits replace discrete free-space optical components and enable miniaturized sensor packages that acquire data in modes not possible with current imaging instruments. This talk will describe an application of photonics where waveguides are forming the core of an integrated hyperspectral imaging instrument. We will show the latest results from the NASA ESTO sponsored SLI-T program at Northrop Grumman.	<b>Stephanie Sandor-Leahy</b> Senior Scientist, Northrop Grumman Corporation
<b>2:40 - 2:47 PM</b>  <b>Striking Near Real-Time Lightning Data from the ISS</b>	In February 2017, the Lightning Imaging Sensor (LIS) was launched and installed on the International Space Station (ISS). ISS LIS provides continuous observations of global lightning flashes at higher latitudes than ever before. In this talk, the Global Hydrology Resource Center DAAC will provide an overview of the ISS LIS near-real time and research quality data that allow for the study of lightning in hazardous weather over much of the Earth.	<b>Leigh Sinclair</b> Science Research Associate, NASA Global Hydrology Resource Center (GHRC) DAAC
<b>2:50 - 2:57 PM</b>  <b>Bringing Harmony to Heterogeneous Soil Moisture Data</b>	Are you looking for soil moisture data? The ORNL DAAC's Soil Moisture Visualizer (SMV) brings together numerous sources of soil moisture data, including: SMAP, GRACE, AirMOSS, SoilSCAPE, Fluxnet, and COSMOS into a single platform for visualization, subsetting, and download. The SMV platform harmonizes surface and root zone soil moisture data from different sensors, formats, and resolutions, and provides convenient access to data for instrument validation, studies of drought, carbon cycle science, and other applications.	<b>Rupesh Shrestha</b> Post-doctoral Researcher, NASA Oak Ridge National Laboratory (ORNL) DAAC

## Detailed Descriptions of Flash Talks (cont.)

Time/Title	Description	Presenter
<b>Thursday, December 14</b>		
<b>1:00 - 1:07 PM</b>  <b>How Cool was the Eclipse?</b>	In August 2017, we asked citizen scientists across the United States to monitor changes in temperature and cloud cover during the Total Solar Eclipse. What did we learn?	<b>Kristen Weaver</b> Deputy Coordinator, GLOBE Observer Program, NASA GSFC
<b>1:10 - 1:17 PM</b>  <b>Preparing for New Astronaut Footprints: NASA's TRES team</b>	The Moon, near-Earth asteroids, and the Martian moons Phobos and Deimos are prime targets for future human missions. NASA's TRES (Toolbox for Research and Exploration) team will develop tools to aid human exploration of these worlds. A focus of TRES is fine grains: all of these target bodies are covered in dusty regolith that must be understood for the safety of future human visitors, and for scientific and practical purposes— like finding drinking water or fuel.	<b>Amanda Hendrix</b> Principal Investigator, NASA TRES Team and Senior Scientist at the Planetary Science Institute
<b>1:20 - 1:27 PM</b>  <b>Radar Love: New Data, New Services, and the Rising Allure of SAR</b>	The radar remote sensing discipline is going through a series of exciting changes right now. Increasingly free-and-open access to SAR data, improved sensor technologies, and a wealth of brand-new automatic processing services have been transforming the science and applications portfolio that can be serviced by radar sensors. Hence, this is the perfect time for you to learn about the ever growing capabilities of SAR and develop your own version of radar love.	<b>Franz Meyer</b> Associate Professor, University of Alaska Fairbanks, Chief Scientist, Alaska Satellite Facility
<b>1:30 - 1:37 PM</b>  <b>Beyond the Solar Eclipse: Lunar Eclipse Science with NASA's Lunar Reconnaissance Orbiter</b>	The solar eclipse of August 2017 engaged millions of people across the United States in what was, for many, a deeply moving, powerful celestial experience. To NASA's Lunar Reconnaissance Orbiter (LRO), lunar eclipses are much more exciting! Most of LRO's instruments are shut down during lunar eclipses to conserve energy, but Diviner remains on whenever possible, observing how the Moon's uppermost surface responds to the rapid temperature change, providing clues about its composition and physical properties.	<b>Benjamin Greenhagen</b> Principal Investigator, NASA's Lunar Reconnaissance Orbiter's Diviner Instrument, John's Hopkins University Applied Physics Laboratory
<b>1:40 - 1:47 PM</b>  <b>Pathways to Ocean Data Discovery, Visualization, and Access</b>	The NASA Physical Oceanography DAAC has developed a suite of browser tools and web services for the user community to discover, explore, visualize, and extract oceanographic satellite data including Level 2 data for sea surface temperature and salinity, and ocean wind and sea level datasets. In this presentation we will show how users can quickly discover and view recent and historic oceanographic phenomena, construct image overlays and comparisons, and show pathways to access the image data.	<b>Ed Armstrong</b> Senior Data Engineer, NASA JPL PO.DAAC
<b>1:50 - 1:57 PM</b>  <b>Find the Water!</b>	Pastoralists and farmers in the Sahel region of West Africa depend on the limited water resources available in the form of ephemeral water bodies. Recently, many of these dry water bodies have been drying up throughout the rainy season. Using a database of known ephemeral waterbodies in the Ferlo Region of Senegal, this tool (using Google Earth Engine) shows if a water body is more than 75% full, less than 25% full, or between the two. By using Landsat as the image source, users in Senegal can get status updates for these important water bodies and disseminate the information to the pastoralists via public radio and other established channels.	<b>Rebekke Muench</b> West Africa Regional Science Associate, NASA SERVIR
<b>2:00 - 2:07 PM</b>  <b>Signals of Opportunity (SoOp): Opening the Electromagnetic Spectrum for Earth Observation</b>	Signals-of-opportunity (SoOp) re-utilizes powerful satellite transmissions in frequencies allocated for space-to-Earth communications, enabling microwave remote sensing outside of the limited number of narrow, protected bands. As a bistatic radar, SoOp views the Earth differently from traditional radars and radiometers. Ocean winds, sea surface height, snow water equivalent, and soil reflectivity have all been measured in SoOp experiments incorporating frequencies from P- to Ka-band. SoOp instruments are small, low-power, and passive; —which makes them ideal for micro-satellite constellations.	<b>James Garrison</b> Professor, School of Aeronautics and Astronautics, Purdue University, West Lafayette, IN

## Detailed Descriptions of Flash Talks

Time/Title	Description	Presenter
<b>2:10 - 2:17 PM</b> <b>Warning! Local Tsunami Alert from GPS Array</b>	<p>Large offshore earthquakes can cause damage to nearby inhabitants and infrastructure due to heavy shaking, but this damage can be far exceeded if a tsunami results from the sudden uplift of the ocean floor along the subducting geologic plate boundary. NASA-supported Global Positioning System (GPS) infrastructure is essential to anticipate the likelihood of a destructive tsunami—before it hits the nearby coast. This technology enables faster warnings to those in harm’s way.</p>	<b>Dara Goldberg</b> PhD Candidate, Scripps Institution of Oceanography, University of California, San Diego
<b>2:20 - 2:27 PM</b> <b>The Sounds of Space</b>	<p>When satellites were first launched in space, we noticed that there were radio waves that sounded like a dawn chorus of birds which occurred on the dawn side of the Earth. When these waves enter into the denser plasmasphere, their frequency signature changes, and they begin to sound more like hissing. Earth is not the only planet with these wonderful waves and sounds, but studying them here close to home helps us better understand them when we visit our solar system neighbors.</p>	<b>Alexa Halford</b> Space Scientist, NASA GSFC, Aerospace Corporation
<b>2:30 - 2:37 PM</b> <b>Say No to the Glow</b>	<p>Light pollution is a growing concern in Grand Teton National Park. In response, NASA DEVELOP partnered with the National Park Service and Wyoming Stargazing to create the Skyglow Estimation Toolbox (SET) which ingests Suomi NPP VIIRS day/night band data to calculate annual light scattering. SET provides park officials a mechanism to determine current sky quality and identify sources of light pollution, as well as inform decisions regarding lighting ordinances in Teton County.</p>	<b>Christie Stevens</b> Communications Fellow, NASA DEVELOP National Program
<b>2:40 - 2:47 PM</b> <b>Some Like It Hot!</b>	<p>As NASA searches to unlock the mysteries of the solar system, one planet stands out as particularly interesting and unique: Venus, one of the solar systems most extreme, most harsh and most desiccated terrestrial environments. Come and learn more about NASA’s plans to explore Earth’s sister planet and hear about the critical technology advancements that will enable revolutionary exploration of the surface of Venus!</p>	<b>Tibor Kremic</b> Chief, Space Science Project Office, NASA Glenn Research Center
<b>2:50 - 2:57 PM</b> <b>Taking Charge of Economic Growth with the Help of Satellite Imagery</b>	<p>The economy of Afghanistan heavily depends on wheat production. The NASA SERVIR program’s regional hub in Nepal is assisting the agriculture ministry to estimate seasonal wheat production using synthetic aperture radar (SAR) data from the European Space Agency (ESA) Sentinel satellites. SAR data usage is increasing because of its finer resolution and easy availability. In addition to delivering the maps, the primary goal of this project is to provide the stakeholders with a technology so that they can fully operate the system and self-sustain in the future.</p>	<b>Rushi Begum Rabeya</b> Regional Science Associate, Hindu Kush-Himalayan Region, NASA Science Co-ordination Office, SERVIR-HKH, MSFC.



# Detailed Descriptions of Live Demonstrations

Time	Description	Presenter
<b>Tuesday:</b> 4:00 - 5:00 PM <b>Wednesday:</b> 3:00 - 4:00 PM <b>Thursday:</b> 11:30 - 1:00 PM	<b>Earthdata Search:</b> <b>A Highly Interactive Tool for Searching and Accessing NASA's Earth Observation Data</b>	<b>Chris Lynnes</b> System Architect, NASA Earth Observing System Data and Information System
<b>Tuesday:</b> 2:00 - 3:00 PM <b>Wednesday:</b> 12:00 - 1:00 PM <b>Friday:</b> 9:30 - 10:30 AM 11:30 - 1:30 PM	<b>Everything You Wanted to Know about NASA's Eyes But Were Afraid to Ask</b> Check out NASA's Eyes – “Eyes on the Earth”, “Eyes on the Solar System” and “Eyes on Exoplanets” – and learn how to get the full value from the applications.	<b>Kevin Hussey</b> Manager, JPL Visualization Technology Applications and Development
<b>Tuesday:</b> 1:00 - 2:00 PM <b>Wednesday:</b> 9:30 - 11:00 AM	<b>Explore Mapping Tools From the NASA Socioeconomic Data and Applications Center (SEDAC)</b> The SEDAC Map Viewer provides capabilities to view and compare four different data layers, locations, or time periods simultaneously. Users can assess the potential exposure of population and infrastructure to hazards such as fires, earthquakes, volcanoes, and floods, and the HazPop app for iPhone and iPad is a free mobile tool to assess exposure and proximity to hazards.	<b>Robert Downs</b> Senior Digital Archivist, NASA Socioeconomic Data and Applications Center (SEDAC)
<b>Tuesday:</b> 3:30 - 4:00 PM <b>Wednesday:</b> 11:00 - 11:30 AM	<b>MoonDB: Petrological Database of Lunar Samples</b> MoonDB (beta version), an online searchable synthesis of geochemical and petrological data acquired on the Apollo sample suite, currently contains data from nearly 700 published datasets so far, including major and trace element and isotopic composition as well as mineral chemistry. MoonDB will be released for public access at this event, which is intended to encourage further data contributions and feedback on usability of the search interface.	<b>Kerstin Lehnert</b> Senior Research Scientist, Lamont-Doherty Earth Observatory, Columbia University
<b>Tuesday:</b> 12:00 - 1:00 PM <b>Wednesday:</b> 4:00 - 5:00 PM <b>Friday:</b> 10:30 - 11:30 AM	<b>Motion in the Ocean</b> This Earth Science hands-on activity explores how water moves throughout the ocean, by using colored saltwater and freshwater in recycled tennis-ball tubes. The experiment demonstrates the global thermohaline circulation system, which is one of the major drivers of our global climate. Participants see for themselves what happens when you pour saltwater on top of freshwater.	<b>Valerie Casasanto</b> Outreach Lead, NASA ICESat-2 Mission
<b>Tuesday:</b> 3:00 - 3:30 PM <b>Wednesday</b> 11:30 - 12:00 PM	<b>NASA Ocean Tools and Services for Science Users</b> The NASA PO.DAAC has developed a suite of browser tools and web services for the user community to discover, explore, visualize, and extract oceanographic satellite data including Level 2 data for sea surface temperature and salinity, and ocean wind and sea level datasets. In a short demonstration (5 minutes) we will show how users can quickly discover and view recent and historic oceanographic phenomena, construct image overlays and comparisons, and show pathways to access the image data. In a longer demonstration (25 minutes) we will show how to use the tool/service set to investigate science questions where users move beyond the discovery and visualization phase to time series data subsetting, extraction and analysis.	<b>Ed Armstrong</b> Data Manager, NASA Data Systems
<b>Thursday:</b> 9:30 - 10:30 AM	<b>Trending Five Years of Data From Mars:</b> <b>Online Software Tools for planetary instrument Tracking</b> We will demonstrate live software tools for analyzing the performance of the Sample Analysis at Mars (SAM) instrument on Curiosity as well as the Mars Organic Molecule Analyzer (MOMA) instrument heading to Mars in 2020. Our numerous software tools provide custom visualization of the engineering and science data including consumables tracking, engineering data trending, science data trending, calibration tools, etc. We will also demonstrate the pipeline that makes the software tools possible.	<b>Eric Lyness</b> Software Lead, Microtel LLC
<b>Wednesday:</b> 1:00 - 3:00 PM <b>Thursday:</b> 10:30 - 11:30 AM	<b>View Your World With Worldview!</b> Interactively browse NASA's global Earth Science satellite imagery in full detail. View the Earth as it looks “right now”. Download imagery and its underlying data. Stop by and learn more about this exciting way to tour the Earth.	<b>Jeff Schmaltz</b> NASA Global Imagery Browse Services (GIBS) and Worldview Teams
<b>Monday:</b> 6:00 - 8:00 PM <b>Tuesday:</b> 9:30 - 12:00 PM <b>Thursday:</b> 1:00 - 5:00 PM	<b>Virtual Reality for Earth Science Applications</b> Experience the latest virtual reality (VR) software for Earth science applications. Developed using feedback provided by Earth scientists, these demos will show how VR can potentially be used to help scientists better understand Earth science data and aid in their research.	<b>Joe Roberts and Christian Alarcon</b> Data Visualization Developers, Jet Propulsion Laboratory





## **NASA's Vision**

To reach for new heights and reveal  
the unknown so that what we do and  
learn will benefit all humankind.



**nasa.gov**  
**svs.gsfc.nasa.gov/hw**